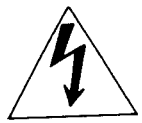
Artistry in Sound **ONKYO**

"CAUTION"
"TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL."



- The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

M-5099

Super Servo Stereo Power Amplifier

Instruction Manual

"WARNING"
"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

- This apparatus complies with requirements of EEC directive 82/499/EEC.
- Das Gerät entspricht den Bestimmungen der EG-Richtlinien 82/499/EWG.
- Cet appareil répond aux spécifications de la directive CCE 82/499/CCE.
- Dit apparaat voldoet aan richtlijn 82/499/EEG.
- Apparatet opfylder kravene i EF direktivet 82/499/EF.
- Quest'apparecchio é stato prodotto in confornitá alle direttive CEE 82/499/CEE.

ONKYO

WARNING

BEFORE TURNING POWER ON, CHECK ONCE AGAIN THAT THE APPLIANCE CAN BE USED WITH THE LOCAL POWER SUPPLY. REFER TO THE POWER SUPPLY RATING IN THE SPECIFICATIONS AND THE VOLTAGE SELECTOR SECTION FOR DETAILS.

Installation and Handling

Observe the following precautions to obtain troublefree performance for many years.

1. Avoid places subject to direct sunlight or extremely high or low temperatures.
2. Avoid damp or dusty places and places directly affected by vibrations from the speakers. In particular, avoid placing the unit on or above one of the speakers.
3. Avoid unstable locations and high places from which the unit could fall.
4. Ventilation — The unit should be situated so that its location or position does not interfere with proper ventilation. For example, the unit should not be placed on a bed, sofa, rug or similar surface that could block the ventilation openings or placed in a built-in installation, such as a bookcase or cabinet, that could impede the flow of air through the ventilation openings.
5. Heat — The unit should be situated away from heat sources such as radiators, heat registers, stoves or other appliances (including amplifiers) that produce heat.
6. Cleaning of the internal parts should be performed only by qualified service personnel.
7. Spillage — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
8. Damage Requiring Service — The unit should be serviced by qualified service personnel when:
   A. The power supply cord or the plug has been damaged.
   B. Objects have fallen or liquid has been spilled into the unit.
   C. The unit has been exposed to rain.
   D. The unit does not appear to operate normally or exhibits a marked change in performance.
   E. The unit has been dropped or the enclosure damaged.
9. The user should not attempt to service the unit beyond the procedures described in the operating instructions. All other servicing should be referred to qualified service personnel.

Care

From time to time you should wipe off the front and rear panels and the cabinet with a silicon or other soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth. Do not use rough material, thinner, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

WARNING

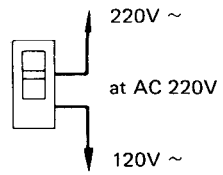
BEFORE TURNING ON POWER FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

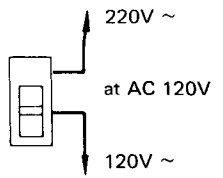
Some models are designed for use only with the power supply voltage of the region where they are sold.

European models:	AC 220V, 50Hz
Canadian models:	AC 120V, 60Hz
British & Australian models:	AC 240V, 50Hz
Worldwide models:	AC 120V, 60Hz/ 220V 50Hz

Voltage Selector (rear panel)

Worldwide models are equipped with a voltage selector to conform with local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before turning the power switch on. Voltage is changed by sliding the groove in the switch with a screwdriver or similar instrument to the up or down position. Confirm that the switch has been moved all the way up or down before turning the power switch on. If there is no voltage selector switch on the unit you have purchased, it can only be used in areas where the power supply voltage is the same as that of the unit.





FOR POWER SUPPLY CORDS WITHOUT PLUGS:

Replacement and mounting of an AC plug on the power cord of this unit should be performed only by qualified service personnel.

- IMPORTANT: The wires in this mains lead are coloured in accordance with the following code:
  Blue: Neutral
  Brown: Live

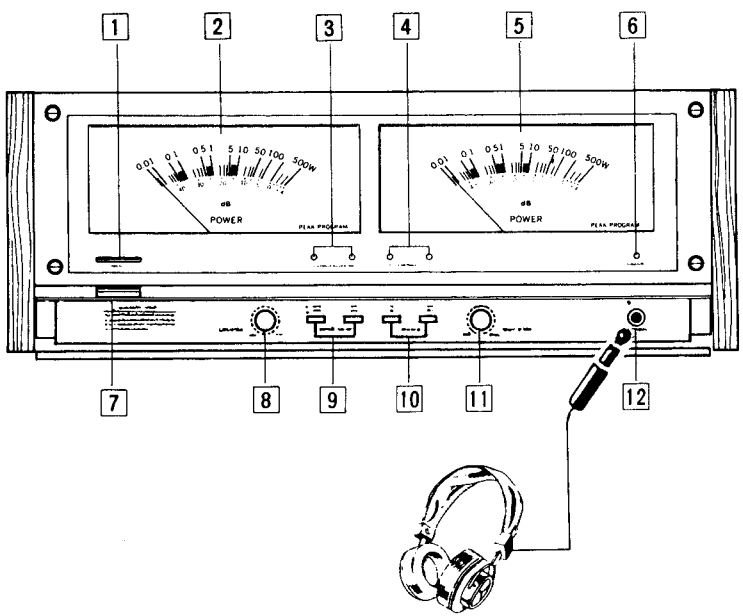
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

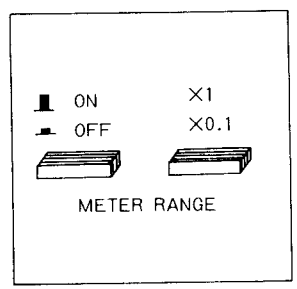
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Front Panel Facilities

Before turning power on for the first time, turn the level controls [8] [11] all the way to the right, turn the volume control on the pre-amp to its minimum setting and confirm that both power meter needles are pointing at '0'.
When the power switch is turned on, both meters will be illuminated by a soft red light. After a short time, the illumination will change to normal and the SERVO OPERATION indicator [6] will light up.
Begin operation of the desired audio source and slowly raise the pre-amp volume control to the desired listening level.
Note that no sound will be produced until the SERVO OPERATION indicator [6] illuminates because the transient killer is operating during this time.

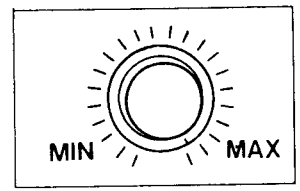


Using the Meter Range Selector Switches
Use these switches to turn the power meters on and off and to select the sensitivity. When the left selector is ON (▮) and the right selector is in the X0.1 (▬) position, the meter sensitivity is increased by 10 times. For example, if the meters show 100 watts of output, the actual output power at that time is 10 watts. When the right selector is in the X1 (▮) position, the meters show the actual output power. The meter range indicators [3] light to clearly show which mode has been selected. You should use the setting in which the needles do not move beyond the end of the scales. If the right selector is OFF (▬), the meter needles will not move at all.

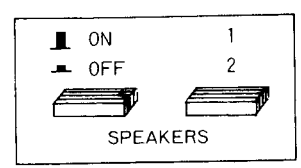


[1] **Power indicator**
[2] **Left channel power meter**
[3] **Meter range indicators**
[4] **Speaker output indicators**
[5] **Right channel power meter**
[6] **Servo operation indicator**
[7] **Power switch**
[8] **Left channel level control**
[9] **Meter range selector switches**
[10] **Speaker output selector switches**
[11] **Right channel level control**
[12] **Headphone jack**

Using the Level Controls
This unit is equipped with separate left and right channel output level controls. Normally, both controls should be turned all the way to the right (MAX.). If one speaker is much louder than the other due to your listening position or the speaker placement, adjust the level controls [8] [11] to obtain the proper balance between the speakers.

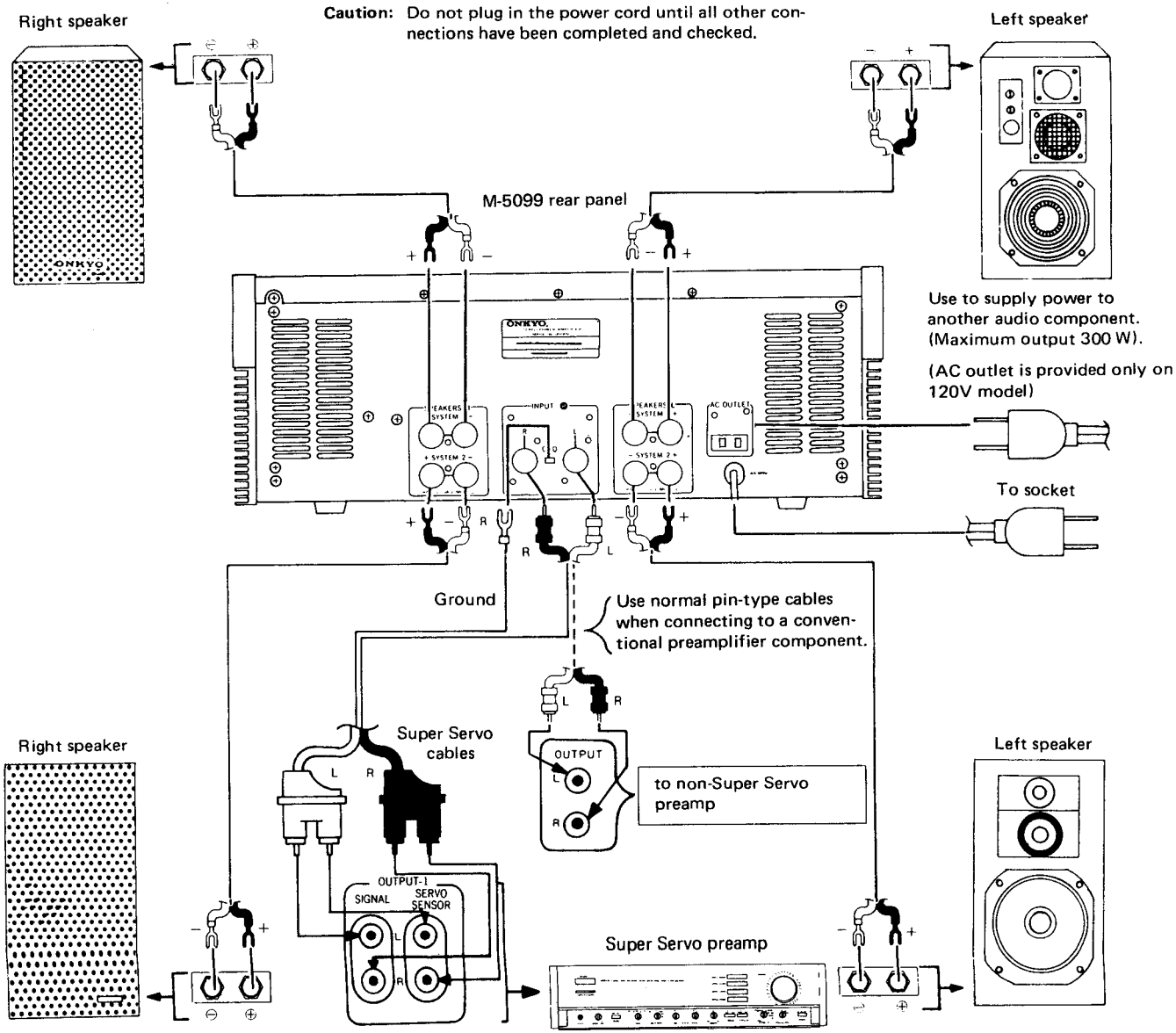


Using the Speaker Output Selector Switches
Depress the left selector to the OFF (▬) position to shut off the output to all speakers. Depress the right selector to use only the speaker system connected to the SYSTEM 1 terminals on the rear panel of the M-5099. When the right selector is in the IN (▬) position, only the SYSTEM 2 speakers are heard. The speaker output indicators light to show which system is being used.



System Connections

- It is recommended that the Onkyo P-3099 preamplifier be used with the M-5099 because the P-3099 features the same Super Servo Integral circuitry. Connect the M-5099 and P-3099 to each other using the special Super Servo cables supplied with the P-3099. If a different preamplifier is connected to the M-5099, use normal pin-type connecting cables.
- Since the M-5099 is a high grade high power amplifier, use only high grade speaker systems capable of doing justice to the excellent quality of sound reproduction that this unit offers.
- Note that although the permissible speaker impedance range is 4 to 16 ohms, the speaker systems selected for use with this unit should have a high power handling capacity. If speaker systems having a low maximum input power rating are used and the volume level is raised to a high level, the speakers may be damaged. Therefore, remember to check the maximum input power rating before connecting speakers to the M-5099.
- Use thick speaker cables for the speaker connections. The use of thin leads is not recommended because the resulting higher speaker lead impedance will adversely affect sound quality.
- To protect the speakers from possible damage, always turn the M-5099 power switch off before connecting or disconnecting speaker systems.
- Be particularly careful not to short circuit the speaker cables at any time.
- Keep the power cord away from the pin-type cables and speaker cables since proximity can result in induction hum.


Caution: Do not plug in the power cord until all other connections have been completed and checked.
Right speaker
Left speaker
M-5099 rear panel
Use to supply power to another audio component. (Maximum output 300 W).
(AC outlet is provided only on 120V model)
To socket
Ground
Use normal pin-type cables when connecting to a conventional preamplifier component.
Super Servo cables
OUTPUT
to non-Super Servo preamp
Right speaker
Left speaker
OUTPUT-1
SIGNAL
SERVO SENSOR
Super Servo preamp

Protection Circuits

Protection circuits in high power amplifiers such as the M-5099 play an important role in protecting both the speaker systems and the amplifier itself from damage. A relay incorporated in the M-5099 speaker output circuit is designed to cut off the output terminals as soon as an abnormal situation (described below) occurs. If this relay is activated, the power meter illumination will switch to soft red and the Super Servo indicator lamp will go out. If this happens, turn the power switch off immediately, locate the cause of the problem and correct it before turning power back on.
In order to prevent the protector relay from affecting sound quality, this unit employs a silver contact relay having a low contact resistance. A few seconds after the power switch is turned on, this relay produces a soft clicking sound that serves as an indication that the amplifier is ready for use. The protective relay will be activated in the following cases:

When an excessive current reaches the speaker terminals
If an excessive current appears at the speaker terminals, the protector relay will initially switch on and off about three times and then finally switch off altogether indicating that a problem has occurred. The problem may be due to short circuiting of the speaker cables or it may be the result of the output power being increased when speakers of low impedance are being used. In any case, turn the power switch off immediately, locate the cause of the problem and correct it.

When a DC voltage reaches the speaker terminals
Since the M-5099 is a DC amplifier incorporating Super Servo system, DC voltages are not normally generated by the amplifier itself. However, if a failure occurs in the amplifier resulting in the appearance of a DC voltage at the output terminals, such a voltage could damage the speakers. Since speakers electrically consist of no more than a coil in which the DC impedance is very low, a DC voltage could cause excessive heat if it reached the speaker coil. Therefore, as soon as a DC voltage is detected, the relay is activated to isolate the speakers from the amplifer.

Although the left and right channels are completely separated from each other in the M-5099, both channels will be cut automatically even if trouble occurs in only one channel. Note that sound is always muted for the first few seconds after the power switch is turned on. This is not a malfunction of the unit.
Some preamplifiers and tape decks generate a "pop" noise when the power is turned on. If such pop noises reach the M-5099, they could activate the protection circuit. If this is a problem, always turn the M-5099 power switch on last after the other components.

Trouble-shooting Guide

If the M-5099 fails to function normally, first check the following points before contacting your Onkyo dealer. If the problem is not solved after going through the following list, unplug the power cord and contact your Onkyo dealer.

1. **No power**
   Check that the power switch [7] has been turned on and that the power cord has been properly plugged into the socket. Also note that when the power cord is plugged into one of the power outlets (switched) on the rear panel of the preamplifier, the preamplifier power must also be turned on. (Rear panel power outlets are provided only on 120V model.)

2. **No sound when power is turned on**
   Check that the speaker cables and the pin-type connecting cables have been properly connected. Then check that there is an input signal from the preamplifier. The speaker output selector must also be in the correct position. If the protective circuitry has been activated (indicated by the power meter illumination Servo operation indicator [6]), turn the power switch off immediately, locate the problem, and correct it.

3. **Generation of hum, howling and other noises**
   Connect a ground lead. Also keep the input connector cables well away from the power cord and power transformer since these are possible sources of induction noise.

Specifications

Power output:	210 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20 Hz to 20 kHz, with no more than 0.005% total harmonic distortion 220 watts per channel, into 8 ohms at 1 kHz, 0.005% THD
Total harmonic distortion:	0.005% at rated power 0.005% at 1 watt output
Intermodulation distortion:	0.005% at rated power
Frequency response:	+0, −1.5 dB at 1Hz − 100kHz
Input sensitivity:	1.5V
Input impedance:	47 kohms
Damping factor:	200 (8 ohms, 1 kHz)
S/N ratio:	126 dB (IHFA, Shorted)
Outputs:	SPEAKERS 1 & 2, AC OUTLET (120V models only), PHONES
Inputs:	INPUT
Power supply:	AC120V, 60Hz or AC220V, 50Hz
Semiconductors:	4 FETs, 82 transistors, 89 diodes, 7 ICs
Dimensions:	480(W) x 191(H) x 439(D)mm 18 57/64" x 7 33/64" x 17 9/32"
Weight:	31 kg, (68.3 lbs.)

Specifications and features are subject to change without notice.